

IN THE CLAIMS

1. Cancelled.
2. Cancelled.
3. Cancelled.
4. Cancelled.
5. Cancelled.
6. Cancelled.
7. Cancelled.
8. Cancelled.
9. Cancelled.
10. Cancelled.
11. Cancelled.
12. Cancelled.
13. Cancelled.
14. Cancelled.
15. Cancelled.

16. (Currently Amended) A direct digitally controlled capacitor for tuning a circuit to a microwave frequency, the capacitor comprising:

a control moving plate that deflects in response to a second plate being charged;

the second plate comprising two or more sub-plates electrically isolated at DC or low frequencies from each other and from said moving plate, the sub-plates controlling the deflection of the moving plate in order to change the microwave frequency output from capacitance of the capacitor to tune a microwave device coupled to the capacitor; and

a plurality of tuning signals attached to the sub-plates of the capacitor for controlling the capacitor.

17. (Original) The capacitor of Claim 16, wherein the sub-plates of the capacitor further comprises two or more sub-plates, a first sub-plate having predetermined area such that

the capacitance change of the capacitor based on the first sub-plate is approximately $\frac{1}{2}$ of the total capacitance of the capacitor and a second sub-plate having a second predetermined area so that the change in the capacitance of the capacitor based on the second sub-plate is approximately $\frac{1}{2}$ the change caused by the first sub-plate to create a binary weighting of the sub-plates so that when one or more of the sub-plates are charged, the control plate deflects a predetermined amount to change the capacitance of the capacitor and tune the microwave device attached to the capacitor.

18. (Currently amended) The capacitor of Claim 16, wherein the sub-plates of the capacitor further comprises two or more sub-plates, a first sub-plate having an area such that the capacitance change of the capacitor is approximately $\frac{1}{2}$ of the total capacitance of the capacitor and a second sub-plate having an area equal to approximately $\frac{1}{2}$ of the area of first sub-plate so that when one or more of the sub-plates are charged, the control plate deflects a predetermined amount to change the capacitance of the capacitor and tune the microwave device attached to the capacitor.

19. (Currently Amended) The capacitor of Claim 16, wherein the dimensions of each of said sub-plates that is driven by each of said tuning signals are set to represent a predetermined, substantially additive, binary weight of a desired tuning effect ~~effect~~ caused by the moving plate.

20. (Original) The capacitor of Claim 19, wherein the area of each sub-plate is decreased by decreasing the width of the each sub-plate.

21. (Original) The capacitor of Claim 20, wherein the area of a sub-plate having a width too small to manufacture is decreased by changing the length of the sub-plate.

22. (Original) The capacitor of Claim 16, wherein the moving plate of the capacitor comprises a cantilevered beam and wherein said sub-plates are arranged in parallel to said cantilevered beam attached to the substrate.

23. (Original) The capacitor of Claim 16, wherein the moving plate of the capacitor further comprises a cantilevered beam and wherein said sub-plates are arranged perpendicular to said cantilevered beam on the substrate.

24. (Original) The capacitor of Claim 16, wherein the moving plate of the capacitor further comprises an interdigital cantilevered beam and wherein said sub-plates are static interdigital beams divided in parallel to said moving cantilevered beam.

25. (Original) The capacitor of Claim 16, wherein the moving plate of the capacitor further comprises an interdigital cantilevered beam and wherein said sub-plates are static interdigital beams divided perpendicularly to said moving digital beam.

26. Cancelled.

27. Cancelled.

28. Cancelled.

29. Cancelled.

30. Cancelled.

31. Cancelled.

32. Cancelled.

33. Cancelled.

34. Cancelled.

35. Cancelled.

36. Cancelled.

37. Cancelled.

38. Cancelled.

39. Cancelled.

40. Cancelled.

41. Cancelled.

42. Cancelled.

43. Cancelled.

- 44. Cancelled.
- 45. Cancelled.
- 46. Cancelled.
- 47. Cancelled.
- 48. Cancelled.
- 49. Cancelled.
- 50. Cancelled.
- 51. Cancelled.
- 52. Cancelled.
- 53. Cancelled.
- 54. Cancelled.
- 55. Cancelled.
- 56. Cancelled.
- 57. (New) The capacitor of Claim 16, wherein a largest plane of at least one of the sub-plates is positioned substantially parallel to a largest plane of the moving plate.